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AUTHOR Weerts, Rita; Whitney, Douglas R.
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ABSTRACT

Data were collected on 80 diverse items concerning student perceptions of teaching for a representative sample of 189 classes at a large university. The items were subdivided by type of focus into four categories: course content, objectives, and structure; instructor's behavior; instructional methods and materials; outcomes of instruction. The research investigated the interactions between type of item and student, course, and instructor characteristics such as degree of difference between actual and expected grades, instructor's highest degree earned and type of graduating institution, and cognitive complexity of the course. Test items used are included in the appendix. (Author/DEP)

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THE EFFECT OF STUDENT, COURSE, AND INSTRUCTOR CHARACTERISTICS ON TYPES OF ITEMS USED IN STUDENT EVALUATION OF INSTRUCTION

Rina R. Weerts and Douglas R. Whitney
University of Iowa

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Perhaps the most crucial aspect in gathering information from students concerning instruction is deciding what to ask. The kinds of items that can be used on student rating instruments can be analyzed in two ways. One is the focus of the item. To what particular aspect of the student's experience in the course are we directing the student's attention? It might be some segment of course content, a visible instructor behavior, or a portion of the course materials. Second, the kind of item includes the task that the student is asked to perform when responding to these items. Often, the items ask the student to observe what has occurred in the classroom and make a value judgment or evaluation based upon that observation. For example, items such as the following often appear on student rating forms:

"Considering everything, how would you rate this instructor?'

"The instructor had an adequate knowledge of his subject matter."

Or, some instruments require students to use a response scale that compares the instructor or course to some "average" or referent group (e.g., Excellent, Above Average, Average, Below Average, Poor). However, an alternative kind of task is a descriptive one rather than an evaluative type. The student's task in such items is to observe and describe various components of the instructional setting. An example of this type might be to ask the students whether they agree or disagree with the following items:

"Instructor communicated at a level appropriate to my understanding."

"My work was evaluated in ways that were meaningful to me."

A brief review of current student opinion forms suggests to us that they appear to be primarily composed of evaluative tasks concerning instructor classroom behavior. Recently, much research has been reported concerned with the validation of such instruments.

Some studies have used a criterion-related approach; their hypothesis being that if student ratings are valid as measures of teaching effectiveness, they should have a positive correlation with measures of student performance. The study by McKeachie, Lin, and Mann (1971) supported this hypothesis, using a measure of critical thinking as a measure of student performance. Other researchers (Rodin and Rodin, 1972; Gessner, 1973; Frey, 1973; Doyle and Whitely, 1974) have used achievement measures in their validity studies, but their results have been conflicting.

Other studies have considered the validation of such instruments more as a matter of construct validity. If student ratings are valid measures of teaching effectiveness, it is usually posited, they should not be affected by various student, course, or instructor variables such as expected grade, class size, or instructor's rank which we <u>believe</u> are not related to teaching effectiveness. Yet, studies (Costin, Greenough, and Menges, 1971) have yielded inconclusive results, either reporting some moderate correlations or no significant correlations among these variables.

However, the validity of student ratings using descriptive items appears to require a different focus. Though a description of what has been observed to have occurred in an instructional setting should probably have no relationship to a variable such as sex of the instructor, relationships with certain other variables might be appropriate. For example, one might expect a positive correlation between a student's perception that his/her knowledge or skill has increased from taking a course and his/her score on the comprehensive final examination. One would <u>not</u> necessarily expect, however, to find a correlation between the test scores and a description of the degree to which practical applications of the material were discussed.

The question then arises concerning what items are appropriate for a descriptive task of student ratings, or, in other words, what can students be expected to observe? The emphasis here should be to focus on those aspects of the instructional setting that students are able and willing to directly observe and report.

Could we as faculty legitimately respond, if questioned by the University Regents, concerning whether the President of the University has done a good job of representing the University to the legislature? How are we to know what his best effort might be? How are we to know what he or she has actually done? It would be more reasonable, perhaps, to ask each of us if we feel that the President's visible actions at faculty senate meetings contributed to faculty welfare. Similarly, it would be unreasonable to ask students if the instructor has an adequate knowledge of his subject matter. On what basis is the student to judge? Rather we might ask the student to describe the presentation of material. A student can probably observe and describe many selected instructor behaviors, course content and structure, and instructional materials and methods. He certainly cannot observe scholarly competence, motivation,or many other factors. Although it is not frequently done, we might also ask the students to describe their perceptions of the outcomes of instruction for them as individuals (e.g., What have you done as a result of the course?). The focus should be for students to respond in terms of individual perception, rather than in terms of effect on the class as a whole. Composite perceptions should be obtained by averaging individual observations, not by averaging (probably invalid) estimates of the average perception. As individuals, we could not respond to a question on how the entire faculty feels concerning some recent action. Nor should

we expect that a student would always be willing to respond honestly to an item such as:

"Instructor was willing to help students outside of class."

Each descriptive statement should have a focus to which the individual student can and will respond validly.

The use of descriptive items for student ratings does not, however, eliminate the use of these ratings as partial evidence of teaching effectiveness. It merely removes the responsibility for evaluation from the student and places it on those who review the student responses. It becomes up to the individual instructor, or his/her colleagues, or the central administration to determine the evaluation suggested by the students' perceptions. All this, of course, presumes a satisfactory level of validity exists in the descriptive procedure.

Purpose

The purpose of this study was to investigate what kinds of descriptive items are or are not related to which course and instructor variables. It is possible that there may be different relationships between various student, course, and instructor characteristics and the items used on student opinion forms according to the focus of the item. As an example, if students indicate that, in general, the course assignments required them to use higher level cognitive processes, we should expect to find that students also describe class activities which encourage them to think and be creative rather than just require recall of material presented by the instructor. Similarly, we might expect that agreement to this type of item would be more prevalent in graduate level courses rather than lower-level undergraduate, introductory courses aimed at teaching students basic, factual information.

In research conducted at the University of Iowa on an evaluative rating form that asked students to compare the instructor to the best and worst instructors they have known, we found that the rank of the instructor was confounded with responses to such items as:

"Ability to adapt course content to level of students."

"Skill in presenting material interestingly and clearly."

However, if the focus of the item were to change such that we asked students whether or not the instructor communicated at a level appropriate to their understanding or whether or not presentation of material was clear, perhaps the rank of the instructor would not be related to the way in which students respond, nor would other characteristics of the instructor such as age or sex.

Research into the relationship between students' grades and the items on the instrument is, of course, also appropriate. When we are asking students to describe the course content or the use of instructional materials, we might expect that the students' anticipated grades should not be related to the averaged response to these types of items. Yet, we might also ask students to describe the impact of the course in terms of whether or not they perceive that their knowledge and skill has been increased or whether they were motivated to work beyond minimum requirements. It would not be unreasonable to assume that if students agreed with these statements, they might also expect to receive good grades or that if the students' perceptions are accurate, the instructor might actually assign relatively high grades.

Therefore, in this study we will investigate the relationships between several course and instructor and four types of descriptive items and examine some of the issues related to the construct validity of descriptive statements solicited from students.

Method

During Fall, 1974, a new system for soliciting student opinions about teaching called Student Perceptions of Teaching (SPOT) was introduced at the University of Iowa. The system was developed to provide a systematic procedure for gathering student opinions. The system includes both normative data, to assist in interpreting results, and sufficient flexibility to adapt to the wide diversity of instructional activities at the university.

Potential items were gathered by reviewing items from a variety of forms used at the University of Iowa and other institutions. Items were chosen and/or modified according to the following criteria: 1) items were included if there was some empirical evidence that they represented characteristics on which instructors and classes differed; 2) all items asked about characteristics that a student could validly be expected to observe and report from his/her experience in the course; 3) items were stated in terms of the individual student's perception; 4) the item focus reflected a single characteristic or behavior such that the meaning of the response would be easily interpretable; 5) items were not highly course specific so that they could be used in more than one course or department. Additionally, as a group, the items were selected to offer considerable variety in the focus of the statements. The pool of 139 descriptive statements were grouped into four types:

I - Course content, objectives, & structure
II - Instructor's behavior
III - Instructional methods and materials
IV - Outcomes of Instruction

Using an item sampling technique, every faculty member at the University (N=1344) was sent a questionnaire listing a set of 14-19 items. For items of the first three types, faculty were asked to indicate whether or not each item described an "important factor in determining how much students learn in any of the courses you teach." For the fourth type of item they were to indicate whether or not the characteristic described represented "an important outcome in any of the courses you teach." In addition, for each item they indicated whether or not they felt that their "students were competent to evaluate that characteristic (outcome)." Based on a return of 672 questionnaires, 80 items were chosen for the SPOT item pool by selecting primarily those items which at least two-thirds of the responding faculty had assessed as being important factors or outcomes, and for which at least fifty percent indicated that their students were competent to evaluate the characteristic. The items were distributed across the four topic areas as follows: 18 items of Type I, 25 items of Type II, 16 items of Type III, and 21 items of Type IV. (Appendix A)

During the last two weeks of the spring semester, 1974, 189 classes selected to be representative of courses throughout the university participated in a pilot study designed to collect base-line data for the 80 SPOT items. An item sampling technique was used to administer the 80 items in each class to enable us to obtain data on all the items without using an undue amount of class time. The items were randomly divided into four groups and each group was printed as a separate form. The four forms were then distributed throughout each class in such a way that approximately one-fourth of the students answered each item. These forms were accompanied by a standard set of instructions to be read to the class. On the back of each of the four forms were four

additional items, included to provide part of the data reported in this study. (Appendix B)

Student responses to the 80 SPOT items utilized a scale which ranged from Strongly Disagree (coded as 1) to Strongly Agree (coded as 6). Individual student responses to each statement were summarized as the averaged response for each of the 189 classes in the sample. These class means served as the dependent variable in all analyses. Eight of the independent variables for this study were measures previously reported in conjunction with research on student ratings (e.g., Gage, 1961; McDaniel & Feldhusen, 1971). These measures are variables whose relationships with responses to evaluative items have indicated potential difficulties in interpreting student responses.

1. Expected grade for each class was computed by averaging the individual students' expected grades.
2. Actual grade assigned was the average of the individual grades actually assigned by the instructor.
3. Whether the course was required or elective was computed as the percent of students indicating that the course was required for them.
4. Class size was estimated by the number of students responding to the SPOT form.
5. Class rank was determined by weighting students reported classification (freshman=1, sophomore=2, ..., graduate=5) and averaging over all students in the course.
6. Rank of the instructor was taken from University records.
7. Sex of the instructor was estimated from the instructor's name.
8. The number of years since the instructor had received a bachelor's degree was used as a surrogate for age.

In addition, four other independent measures were used in the analyses. These were variables that we had not found reported in the literature but which we wanted to explore as possibly being related to some types of items.

9. A measure of difference between the average students' expected grade and the averaged actual grades assigned by the instructor.
10. The percent of students attending on the day of administration of the forms as compared to the actual enrollment figures for the class.
11. As a measure related to teacher preparation, the rating of the graduate institution from which the instructor had received his/her last degree was based on the Survey of Graduate Education by the American Council on Education (Roose and Andersen, 1970).

Finally, we were interested in how students rated the cognitive complexity of the course according to the taxonomy developed by Bloom et al, (1956) and how that perception related to their responses to items concerning mental activity.

12. Cognitive complexity was computed as the averaged responses of the students to question 4 in Appendix B.

Results and Discussion

An analysis of variance was performed for each of the twelve independent variables with the items nested within type using the averaged student responses to all 80 SPOT items. The results of those analyses are presented in Tables 1-12.

An overall pattern does emerge in the analyses. Students tend to agree most strongly with items describing instructor behaviors and, for most independent variables, the mean responses by level are more tightly clustered for

these items than for the other types of items. In contrast, endorsement by students is generally least for items concerning outcomes of instruction, and the means for the levels on this type of item are typically most divergent. Since our items were not sampled randomly from pre-specified domains, however, it is not clear whether this result is a peculiarity of our item sets or a more general result with implications for instrument construction and interpretation of results. Since there was a significant interaction between the levels of each of the independent variables and the types of items, we investigated the relationship between the responses to the individual items and each independent variable. Though a correlation of $\pm.19$ for this sample size was sufficient to reject the hypothesis that two variables are uncorrelated at $p<.01$, it was decided that a value of $\pm.30$ would be of more substantive interest and would serve to focus attention on only the most substantial relationships. In the discussion to follow, items will be referenced by the item number and it may be necessary to refer to Appendix A for the complete text of each item.

Class Size

The significant interaction between class size and type of item indicated from examining the means that students agree less strongly with the items concerning outcomes of instruction than with other types of items and that overall agreement is not as prevalent in larger classes as it is in smaller classes.

Smaller classes seemed to respond in a very similar manner, particularly concerning course content and structure where their means were clustered. The statements concerning outcomes of instruction seemed to be least characteristic of larger classes where it would be expected that students might feel less personal impact concerning motivation and interest and (perhaps) learning activities. That is, students in smaller classes reported that instruction had

more effect on them than did students in larger classes.

Insert Table 1 about here

When we look at the individual items we find that one item (#234) had a negative correlation (-.42) with this variable. This result is quite reasonable because as the size of the class increases, it is likely that, for most classes, less time would be devoted to class discussion. In fact, the absence of such a relationship would reflect unfavorably on the item's validity.

Percent of Students Responding Compared to Class Enrollment

We thought that the number of students who attend class compared to the actual number enrolled might be indicative of students' interest in the course and might be reflected in responses to the type of items concerning interest. Despite the presence of an interaction between this variable and item type, this does not appear to be the case according to the level by type means. Items relating to outcomes of instruction, many of which concern student interest, seem less characteristic of all classes. The group of classes in which 80%-85% of enrolled students responded to the SPOT items seems to account for the interaction in this instance. These classes elicited lower means (meaning the items were less characteristic) than the other groups--particularly on outcomes of instruction and course structure. Therefore, for some reason, it would appear that outcomes of instruction and course structure are most noteable in course where either most students or relatively few students attend class. It is interesting to note here that, on the average, 81% of the students were attending class on the days that the SPOT forms were administered.

Insert Table 2 about here

Class Rank

The average class rank of the students showed a significant interaction with the type of item, though there did not seem to be substantial differences among the levels of this variable.

Consistent with expectation is the pattern of responses for outcomes of instruction. Classes primarily consisting of upperclass students and graduate students (group 7) indicated that the outcomes of instruction were more characteristic of their courses than did classes of mostly lower classmen.

Insert Table 3 about here

Further analysis indicated that only two items of one type, focusing on outcomes of instruction, were positively correlated with class rank. The relationships with items #427 and #428 indicate the type of activity or motivation likely to occur in courses taken primarily by upperclass and graduate students, and, consequently, are compatible with what we presume are common teaching practices.

Required vs. Elective Courses

This analysis produced both a significant interaction effect and a significant main effect between classes grouped by percentage of required students. Classes which were predominantly required courses for the students tended to agree less with most items than did classes which were elected by students. This was particularly true among classes in which 90% or more of the student enrolled as a requirement. For these classes, items concerning all but instructor behavior seemed to be particularly less characteristic of the instructional environment. That is, the statements in the item pool seemed to be less descriptive of courses taken as a requirement.

Insert Table 4 about here

Looking at the individual items, three of the four items (#102, #402, #403, and #408) that were most frequently endorsed by students who had enrolled in the course primarily as an elective were of the same type - outcomes of instruction. These results tend to confirm the expectation that students are, on the average, more interested in courses they have elected to take and more likely to enroll in similar courses in the future. What is, perhaps, of greater interest is that responses to items concerning course content, instructor behavior, etc. are not strongly correlated with the degree to which students are required or elect to take courses.

Sex of Instructor

The significant interaction in this analysis indicated that the items were somewhat less characteristic in courses taught by male instructors than female instructors, with the largest diffefence occurring on outcomes of instruction. However, further analyses did not reveal this variable to have even a moderate correlation (.30) with any of the SPOT items.

Insert Table 5 about here

Rank of Instructor

There was a significant interaction between the rank of the instructor and the student responses to the types of items. The level by type means indicated that for classes taught by teaching assistants, the items concerning outcomes of instruction tended to be less characteristic than for classes taught by faculty.

All ranks seemed to be similar in class practices and most similar in instructor behavior, but the effect of instruction as estimated by perceived outcomes seems to be less characteristic for teaching assistant than for faculty. That is, teaching assistants appeared to have less impact on self-reported student learning and interest than faculty members. Again, there were no item averages that correlated greater than .30 with this variable.

Insert Table 6 about here

Age of Instructor

The interaction in this analysis between the age of the instructor as measured by the number of years since obtaining a bachelor's degree and the types of items indicated a similar pattern as with rank of instructor. Again the largest difference in means occurred on items concerning outcomes of instruction, indicating that less experienced instructors are seen as having less effect by students. No correlations greater than .30 emerged in additional analysis.

Insert Table 7 about here

Instructor's Graduate School Training

For this variable Level 1 represented instructors whose graduate programs were not ranked among the best programs in their discipline in the American Council on Education rating. This analysis indicated that students of these instructors tended to agree more with all types of items than students of the other instructors.

Of particular interest here is that in most other analyses instructor behavior items had the highest means among the four types for all levels. However in this analysis, instructors whose graduate programs had the highest ratings, had a lower mean than the other groups and that mean was lower than the mean for course content, which is an atypical pattern. That is, faculty from more "prestigous" institutions were reported as less frequently exhibiting desirable instructor behaviors than were other faculty. However, this significant interaction was not reflected in any correlations greater than .30.

Insert Table 8 about here

Average Expected Grade

The significant interaction between average expected grade and types of items was consistent concerning this variable. Students who expected relatively low grades responded that all types of items were less characteristic of their courses than the other students, and particularly with items concerning outcomes of instruction. Students who expected the highest grades agreed more with the items overall. These students responded that the outcomes of instruction were particularly more characteristic of their classes with a mean rating higher than on the third type of item which is unusual. Of interest here is the wide divergence among the levels for the outcome items. Classes who think they have done well in a course report that they are more motivated and have learned more.

Insert Table 9 about here

In all, 31 of the items showed a positive correlation of .30 or higher with average expected grade. Close inspection of these items reveals that the focus of the item has much to do with these relationships. At one extreme, only two items concerning instructional methods and materials (#326 and #301) correlated with average expected grade. The first item concerns the degree to which discussion was seen as helpful to learning and the latter item concerned the students' perception of fairness in grading.

For the focus of instructor's behavior, 6 items correlated with average expected grade (#206, #211, #217, #219, #221, and #234). Three of the items concerned the manner in which material was presented and the other three concerned the students' perceptions of an empathetic, encouraging instructor. It is not unlikely that if students agree with these items, they expect to be successful in the course.

Eight of the items focusing on course content, objectives, and structure revealed substantial correlations with average expected grade (#102, #108, #114, #116, #122, #127, #128). For the most part, they concern helpfulness of course elements and students' level of interest; factors that might be expected to be related to how much students think they have learned.

All but six items (#407, #409, #411, #413, #418, and #423) which are concerned with outcomes of instruction are correlated with average expected grade. This is a logical and desirable result, since that to the extent that students gain something from the course it would be reflected in grades. In this case, the gains are interest, motivation, confidence, and increased knowledge.

Because it is accepted practice to assign higher grades, on the average, in upper level courses enrolling primarily majors and in graduate courses, and since our sample contained many such courses, it seemed that some of the differences among courses in average expected grade may be due

to that factor. Therefore, we reanalyzed the relationships between average item responses and average expected grade adjusting for class rank.* Of the 31 correlations of .30 or larger between the items and expected grade, only 17 still exceeded this value in the new analysis. This result suggests that about half of the SPOT items for which responses are substantially related to average expected grade appear to reflect primarily common characteristics of upper level courses.

Average Assigned Grade

Here again the interaction between the independent variable and the type of item was an expected result. The pattern of responses here was similar to the pattern for expected grade, though the endorsement of most items among students actually assigned lower grades was greater than among those expecting lower grades.

Again, the pattern for students assigned the higher grades indicated a higher mean on outcomes of instruction than on course methods and materials, which did not occur for students assigned the lower grades. The means were also most divergent for the outcome items. This indicates that instructors assign higher grades to classes in which students think they have learned more and have been more highly motivated.

Insert Table 10 about here

There were, however, only 11 items, far fewer than for expected grades, that correlated (.30 or higher) with the actual grades assigned by the instructor. None of the items concerning instructional methods and materials meet the .30 criterion. Of the four items focusing on course content and structure and instructor's behavior that did meet the criterion (#127, #211, #214, #234), all signify that instructors tended to give higher grades

*As a partial correlation

in courses where students perceived an exchange of ideas occurring. Again, most of the correlations appear with items concerning outcomes of instruction. These items (#404, #405, #414, #416, #424, #427, and #428) suggest that in classes where students are motivated to develop an interest beyond what occurs in the class and have an opportunity to express their knowledge to the instructor, relatively higher grades are assigned.

Accuracy of Expected Grades

A student's perception of his/her performance in a course may be quite different from the instructor's perception of that performance. The average class expected grade in this sample was 3.2 (on a 4.0 system); the average grade actually assigned was 3.0. It seemed appropriate to investigate whether there was any relationship between the degree of "misperception" on the part of the students and how they responded to the items. The analysis of variance indicated an interaction between averaged student responses and the accuracy with which students, as a group, anticipated the average grade assigned in the course. Looking at the level by type means, it would appear that, where there were many discrepancies between expected and assigned grades, students tended to respond that the items were less characteristic of their course on all but the instructor behavior items.

Insert Table 11 about here

Cognitive Complexity

Using a modified 5-statement summary of Bloom's taxonomy, the students were asked to indicate their perceptions of the cognitive level required by the exams and assignments. It was predicted that this variable would be

related to students' responses to certain types of items that described the cognitive activity that they engaged in during the semester. The significant interaction on this variable suggests that some types of items are related to the cognitive complexity of the course. Examining the level by type means indicated in courses designated by student as being of a higher cognitive nature, the students tended to agree more with the items overall. The different patterns of student responses is most distinguishable with items concerning outcomes of instruction. Courses identified by students as requiring lower cognitive levels were least characteristic on outcomes of instruction than on other types of items. Of special interest here is the particularly low mean for the group on type 3 items which describe methods and materials, including the level of mental activity required by the exams. For courses requiring higher cognitive levels, the effects of instruction were more notable. The responses for all levels were most similar for items concerning instructor behavior.

Insert Table 12 about here

The correlational analysis of the items with the variable on cognitive complexity results in a striking consistency with our expectations. Four items concerning course content, objectives, and structure (#114, #116, #123, #128) show a positive relationship to the independent variable. Agreement to each of these items suggests that students perceived that the structure of the course emphasized the development of higher level thought processes. The highest correlation (.51) of any item with any variable in this study occurred between item #114 and the question on cognitive complexity.

The four items focusing on instructor's behavior (#203, #211, #233, #234) that were correlated with cognitive complexity suggest that in courses where there occurs an exchange of ideas among students and with the instructor a higher level of cognitive activity is required. The one item on instructional methods (#326) also concerned with discussion was similarly correlated with cognitive complexity. Three other items of this type (#306, #329, #333) which deal with the types of mental activity encouraged by the instructor met the criterion of this analysis.

It is often a desirable outcome of instruction that students are able to use and develop upon what they have learned from a course. This type of activity is represented in the hierarchy of Bloom's taxonomy. Five items (#409, #410, #417, #423, #424) that describe the impact of the course as eliciting these more involved thought processes from the student were related to the question on cognitive complexity.

Summary

Of particular interest to us in the data was that the largest differences among the levels in each of the analyses occurred on items concerning outcomes of instruction. The other three types of items represent in-class practices. Student responses were most similar on these items. If any type of item describes the effectiveness of instruction, it is the student-reported outcomes. These were the items on which classes representing varying levels of selected characteristics differed the most.

In most cases the expectation that some types of items (depending upon their focus) would be related to certain course and instructor characteristics was confirmed. Often where a correlation of $\pm .30$ occurred between averaged

item responses and the variable, the relationship was reasonable and often one we had anticipated. Perhaps what is equally noteworthy in developing the construct validity of this type of system are those items which did not correlate with the independent variables in this study. For example, we did not expect and did not find that the class standing of the students was related to any of the students' descriptions of the instructor's class behavior.

However, there were some expected relationships that did not occur. An item such as "Adequate time for questions was provided" was expected to show a larger negative correlation with class size ($r = -.23$). There were two items describing exams (#312 and #332) which we had expected to be related more strongly to cognitive complexity. (Correlations were .27 and .06.)

Further analysis is planned to enable us to answer some of the questions that we are unable to answer at this time. It would be appropriate with respect to the interactions that occurred, but for which we found no correlations, to explore the possibility of nonlinear relationships.

Additionally, a more thorough analysis of the significant main effects (percent required, expected and assigned grades, and cognitive complexity) is planned.

References

Bloom, B. S. (Ed.) Taxonomy of Educational Objectives, Handbook I: Cognitive Domain, New York: McKay, 1956.

Costin, F., Greenough, W. T., & Menges, R. J. Student ratings of college teaching: Reliability, validity, and usefulness. Review of Educational Research, 1971, 41, 511-535.

Doyle, K. O. and Whitely, S. E. Student ratings as criteria for effective teaching. American Educational Research Journal, 1974, 11, 259-274.

Frey, P. W. Student ratings of teaching: Validity of several rating factors. Science, 1973, 182, 83-85.

Gage, N. L. The appraisal of college teaching: An analysis of ends and means. Journal of Higher Education, 1961, 32, 17-22.

Gessner, P. K. Evaluation of instruction. Science, 1973, 180, 566-570.

McDaniel, E. and Feldhusen, J. F. Relationships between faculty ratings and indexes of service and scholarship. Proceedings of the 78th Annual Convention of the American Psychological Association, 1970, 5, 619-620.

McKeachie, W. J., Lin, Y., & Mann, W. Student ratings of teacher effectiveness: Validity studies. American Educational Research Journal, 1971, 8, 435-445.

Rodin, M. and Rodin, B. Student evaluations of teachers. Science, 1972, 177, 1164-1166.

Roose, K. D. and Andersen, C. J. A Rating of Graduate Programs, American Council on Education, 1970.

TABLE 1

ANCVA OF SPOT ITEM RESPONSES BY CLASS SIZE
NO. OF LEVELS ON INDEPENDENT VARIABLE IS 6

LEVEL	LOWER LIMIT		UPPER LIMIT
1	0	-	10
2	11	-	15
3	16	-	20
4	21	-	30
5	31	-	50
6	51	-	166

ANOVA SUMMARY TABLE FOR LEVELS= CLASS SIZE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
BET.CLASSES	188	3003.63	
B	5	166.38	33.27
ERR.B	183	2837.25	15.50
WITH.CLASSES	14931	7542.88	
TYPE	3	106.56	35.52
ITEM W. TYPE	76	1157.38	15.23
LEVEL X TYPE	15	96.00	6.40**
I X L WITH.T	380	124.94	0.33
ERR.W	14457	6058.00	0.42
TOTAL	15119	10546.50	

**p<.01

MEANS
ITEM TYPES

	1	2	3	4	ALL TYPES
LEVEL 1	4.88	4.95	4.81	4.72	4.85
LEVEL 2	4.89	4.91	4.67	4.66	4.79
LEVEL 3	4.89	4.95	4.75	4.71	4.83
LEVEL 4	4.79	4.81	4.61	4.56	4.70
LEVEL 5	4.67	4.73	4.57	4.38	4.59
LEVEL 6	4.71	4.71	4.50	4.32	4.57
ALL LEVELS	4.83	4.87	4.68	4.60	

TABLE 2

ANOVA OF SPOT ITEM RESPONSES BY PERCENT RESPONDING/ENROLLED
NO. OF LEVELS ON INDEPENDENT VARIABLE IS 5

LEVEL	LOWER LIMIT		UPPER LIMIT
1	20	-	69
2	70	-	79
3	80	-	85
4	86	-	94
5	95	-	100

ANOVA SUMMARY TABLE FOR LEVELS= PERCENT RESPONDING/ENROLLED

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
BET.CLASSES	187	3003.44	
B	4	82.63	20.66
ERR.B	183	2920.81	15.96
WITH.CLASSES	14852	7522.13	
TYPE	3	104.31	34.77
ITEM W. TYPE	76	1150.38	15.14
LEVEL X TYPE	12	85.88	7.16**
I X L WITH.T	304	7.13	0.02
ERR.W	14457	6174.44	0.43
TOTAL	15039	10525.56	

**p<.01

MEANS
ITEM TYPES

	1	2	3	4	ALL TYPES
LEVEL 1	4.86	4.87	4.71	4.64	4.77
LEVEL 2	4.82	4.87	4.61	4.57	4.73
LEVEL 3	4.65	4.73	4.57	4.37	4.59
LEVEL 4	4.88	4.93	4.75	4.67	4.82
LEVEL 5	4.85	4.87	4.69	4.64	4.77
ALL LEVELS	4.83	4.87	4.68	4.60	

TABLE 3

ANOVA OF SPOT ITEM RESPONSES BY CLASS RANK
NO. OF LEVELS ON INDEPENDENT VARIABLE IS 7

LEVEL	LOWER LIMIT		UPPER LIMIT
1	1.00	-	2.49
2	2.50	-	3.19
3	3.20	-	3.49
4	3.50	-	3.99
5	4.00	-	4.49
6	4.50	-	4.98
7	4.99	-	5.00

ANOVA SUMMARY TABLE FOR LEVELS= CLASS RANK

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
BET.CLASSES	188	3003.63	
B	6	189.94	31.66
ERR.B	182	2813.69	15.46
WITH.CLASSES	14931	7542.88	
TYPE	3	106.56	35.52
ITEM W. TYPE	76	1157.38	15.23
LEVEL X TYPE	18	102.25	5.68**
I X L WITH.T	456	148.06	0.32
ERR.W	14378	6028.63	0.42
TOTAL	15119	10546.50	

**p<.01

MEANS
ITEM TYPES

	1	2	3	4	ALL TYPES
LEVEL 1	4.66	4.71	4.58	4.34	4.58
LEVEL 2	4.73	4.80	4.57	4.47	4.65
LEVEL 3	4.84	4.89	4.63	4.61	4.75
LEVEL 4	4.81	4.80	4.71	4.60	4.73
LEVEL 5	4.94	5.03	4.77	4.76	4.89
LEVEL 6	5.00	5.00	4.83	4.76	4.90
LEVEL 7	4.90	4.95	4.72	4.75	4.84
ALL LEVELS	4.83	4.87	4.68	4.60	

TABLE 4

ANCVA OF SPOT ITEM RESPONSES BY REQUIRED VS. ELECTIVE COURSES
NO. OF LEVELS ON INDEPENDENT VARIABLE IS 5

LEVEL	LOWER LIMIT		UPPER LIMIT
1	0	-	10
2	11	-	29
3	30	-	59
4	60	-	89
5	90	-	100

ANOVA SUMMARY TABLE FOR LEVELS= REQUIRED VS. ELECTIVE COURSES

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
BET.CLASSES	188	3003.63	
B	4	239.56	59.89**
ERR.B	184	2764.06	15.02
WITH.CLASSES	14931	7542.88	
TYPE	3	106.56	35.52
ITEM W. TYPE	76	1157.38	15.23
LEVEL X TYPE	12	89.94	7.49**
I X L WITH.T	304	113.94	0.37
ERR.W	14536	6075.06	0.42
TOTAL	15119	10546.50	

**p<.01

MEANS
ITEM TYPES

	1	2	3	4	ALL TYPES
LEVEL 1	4.95	4.98	4.81	4.78	4.89
LEVEL 2	4.88	4.93	4.73	4.68	4.81
LEVEL 3	4.90	4.94	4.72	4.67	4.82
LEVEL 4	4.81	4.81	4.68	4.52	4.71
LEVEL 5	4.60	4.70	4.46	4.34	4.53
ALL LEVELS	4.83	4.87	4.68	4.60	

TABLE 5

ANCVA OF SPOT ITEM RESPONSES BY SEX OF INSTRUCTOR
NO. OF LEVELS ON INDEPENDENT VARIABLE IS 2

LEVEL	LOWER LIMIT	-	UPPER LIMIT
1	1	-	1
2	2	-	2

ANOVA SUMMARY TABLE FOR LEVELS= SEX OF INSTRUCTOR

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
BET.CLASSES	188	3003.63	
B	1	24.25	24.25
ERR.B	187	2979.38	15.93
WITH.CLASSES	14931	7542.88	
TYPE	3	106.56	35.52
ITEM W. TYPE	76	1157.38	15.23
LEVEL X TYPE	3	10.81	3.60**
I X L WITH.T	76	19.25	0.25
ERR.W	14773	6248.88	0.42
TOTAL	15119	10546.50	

**p<.01

MEANS
ITEM TYPES

	1	2	3	4	ALL TYPES
LEVEL 1	4.81	4.86	4.67	4.58	4.74
LEVEL 2	4.92	4.93	4.76	4.74	4.85
ALL LEVELS	4.83	4.87	4.68	4.60	

TABLE 6

ANOVA OF SPOT ITEM RESPONSES BY RANK OF INSTRUCTOR
NO. OF LEVELS ON INDEPENDENT VARIABLE IS 5

LEVEL	LOWER LIMIT		UPPER LIMIT
1	1	-	1
2	2	-	2
3	3	-	3
4	4	-	4
5	5	-	5

ANOVA SUMMARY TABLE FOR LEVELS= RANK OF INSTRUCTOR

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	
BET.CLASSES	187	3000.44		
B	4	36.06	9.02	
ERR.B	183	2964.38	16.20	
WITH.CLASSES	14852	7485.50		
TYPE	3	106.75	35.58	
ITEM W. TYPE	76	1148.44	15.11	
LEVEL X TYPE	12	75.56	6.30	**
I X L WITH.T	304	120.38	0.40	
ERR.W	14457	6034.38	0.42	
TOTAL	15039	10485.94		

**p<.01

MEANS
ITEM TYPES

	1	2	3	4	ALL TYPES
LEVEL 1	4.84	4.84	4.71	4.61	4.75
LEVEL 2	4.87	4.92	4.67	4.66	4.79
LEVEL 3	4.83	4.89	4.70	4.60	4.76
LEVEL 4	4.78	4.80	4.63	4.58	4.71
LEVEL 5	4.71	4.82	4.57	4.42	4.64
ALL LEVELS	4.82	4.87	4.67	4.60	

TABLE 7

ANCVA OF SPOT ITEM RESPONSES BY AGE OF INSTRUCTOR
NO. OF LEVELS ON INDEPENDENT VARIABLE IS 5

LEVEL	LOWER LIMIT		UPPER LIMIT
1	1	-	4
2	5	-	10
3	11	-	15
4	16	-	25
5	26	-	50

ANOVA SUMMARY TABLE FOR LEVELS= AGE OF INSTRUCTOR

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
BET.CLASSES	178	2878.13	
B	4	47.19	11.80
ERR.B	174	2830.94	16.27
WITH.CLASSES	14141	7145.13	
TYPE	3	102.50	34.17
ITEM w. TYPE	76	1093.75	14.39
LEVEL X TYPE	12	81.50	6.79 **
I X L WITH.T	304	106.19	0.35
ERR.W	13746	5761.19	0.42
TOTAL	14319	10023.25	

**p<.01

MEANS
ITEM TYPES

	1	2	3	4	ALL TYPES
LEVEL 1	4.71	4.82	4.57	4.42	4.64
LEVEL 2	4.86	4.95	4.72	4.59	4.79
LEVEL 3	4.74	4.81	4.61	4.53	4.68
LEVEL 4	4.87	4.89	4.70	4.65	4.78
LEVEL 5	4.86	4.84	4.73	4.63	4.77
ALL LEVELS	4.82	4.86	4.68	4.59	

TABLE 8

ANCVA OF SPOT ITEM RESPONSES BY INSTRUCTOR'S GRADUATE SCHOOL TRAINING
NO. OF LEVELS ON INDEPENDENT VARIABLE IS 4

LEVEL	LOWER LIMIT		UPPER LIMIT
1	0.0	-	0.0
2	1.0	-	1.2
3	1.3	-	1.9
4	2.0	-	3.0

ANCVA SUMMARY TABLE FOR LEVELS= INSTRUCTOR'S GRADUATE SCHOOL TRAINING

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
BET.CLASSES	104	1480.88	
B	3	64.56	21.52
ERR.B	101	1416.31	14.02
WITH.CLASSES	8295	4531.94	
TYPE	3	63.44	21.15
ITEM W. TYPE	76	660.50	8.69
LEVEL X TYPE	9	44.13	4.90**
I X L WITH.T	228	101.25	0.44
ERR.W	7979	3662.63	0.46
TOTAL	8399	6012.81	

**p<.01

MEANS
ITEM TYPES

	1	2	3	4	ALL TYPES
LEVEL 1	5.01	5.10	4.95	4.87	4.99
LEVEL 2	4.73	4.81	4.74	4.49	4.69
LEVEL 3	4.74	4.82	4.59	4.50	4.67
LEVEL 4	4.81	4.78	4.67	4.59	4.71
ALL LEVELS	4.78	4.83	4.70	4.55	

TABLE 9

ANOVA OF SPOT ITEM RESPONSES BY AVERAGE EXPECTED GRADE
NO. OF LEVELS ON INDEPENDENT VARIABLE IS 5

LEVEL	LOWER LIMIT		UPPER LIMIT
1	1.00	-	2.99
2	3.00	-	3.19
3	3.20	-	3.29
4	3.30	-	3.49
5	3.50	-	4.00

ANOVA SUMMARY TABLE FOR LEVELS= AVERAGE EXPECTED GRADE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
BET.CLASSES	188	3003.63	
B	4	646.75	161.69 **
ERR.B	184	2356.88	12.81
WITH.CLASSES	14931	7542.88	
TYPE	3	106.56	35.52
ITEM W. TYPE	76	1157.38	15.23
LEVEL X TYPE	12	104.06	8.67 **
I X L WITH.T	304	117.44	0.39
ERR.W	14536	6057.44	0.42
TOTAL	15119	10546.50	

**p<.01

MEANS
ITEM TYPES

	1	2	3	4	ALL TYPES
LEVEL 1	4.52	4.55	4.33	4.19	4.40
LEVEL 2	4.74	4.85	4.67	4.48	4.69
LEVEL 3	4.90	4.85	4.70	4.63	4.77
LEVEL 4	4.91	4.93	4.80	4.74	4.85
LEVEL 5	5.06	5.12	4.87	4.93	5.01
ALL LEVELS	4.83	4.87	4.68	4.60	

TABLE 10

ANOVA OF SPOT ITEM RESPONSES BY AVERAGE ASSIGNED GRADE

NO. OF LEVELS ON INDEPENDENT VARIABLE IS 5

LEVEL	LOWER LIMIT		UPPER LIMIT
1	1.00	-	2.74
2	2.75	-	2.99
3	3.00	-	3.24
4	3.25	-	3.49
5	3.50	-	4.00

ANOVA SUMMARY TABLE FOR LEVELS= AVERAGE ASSIGNED GRADE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
BET.CLASSES	181	2918.38	
B	4	348.63	87.16**
ERR.B	177	2569.75	14.52
WITH.CLASSES	14378	7324.19	
TYPE	3	102.25	34.08
ITEM W. TYPE	76	1120.25	14.74
LEVEL X TYPE	12	93.56	7.80**
I X L WITH.T	304	145.94	0.48
ERR.W	13983	5862.19	0.42
TOTAL	14559	10242.56	

**p<.01

MEANS

ITEM TYPES

	1	2	3	4	ALL TYPES
LEVEL 1	4.62	4.67	4.47	4.30	4.52
LEVEL 2	4.74	4.74	4.64	4.46	4.65
LEVEL 3	4.89	4.94	4.72	4.67	4.81
LEVEL 4	4.95	4.95	4.78	4.81	4.88
LEVEL 5	4.97	5.06	4.83	4.83	4.94
ALL LEVELS	4.83	4.87	4.68	4.60	

TABLE 11

ANCVA OF SPOT ITEM RESPONSES BY ACCURACY OF EXPECTED GRADE
NO. OF LEVELS ON INDEPENDENT VARIABLE IS 4

LEVEL	LOWER LIMIT		UPPER LIMIT
1	0.00	-	0.09
2	0.10	-	0.19
3	0.20	-	0.39
4	0.40	-	1.11

ANOVA SUMMARY TABLE FOR LEVELS= ACCURACY OF EXPECTED GRADE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	
BET.CLASSES	181	2918.38		
B	3	41.56	13.85	
ERR.B	178	2876.81	16.16	
WITH.CLASSES	14378	7324.19		
TYPE	3	102.25	34.08	
ITEM W. TYPE	76	1120.25	14.74	
LEVEL X TYPE	9	85.94	9.55	**
I X L WITH.T	228	31.38	0.14	
ERR.W	14062	5984.38	0.43	
TOTAL	14559	10242.56		

**p<.01

MEANS
ITEM TYPES

	1	2	3	4	ALL TYPES
LEVEL 1	4.85	4.88	4.77	4.70	4.80
LEVEL 2	4.90	4.92	4.75	4.62	4.80
LEVEL 3	4.80	4.89	4.57	4.58	4.73
LEVEL 4	4.76	4.79	4.65	4.51	4.68
ALL LEVELS	4.83	4.87	4.68	4.60	

TABLE 12

ANCVA OF SPOT ITEM RESPONSES BY COGNITIVE COMPLEXITY
NO. OF LEVELS ON INDEPENDENT VARIABLE IS 5

LEVEL	LOWER LIMIT		UPPER LIMIT
1	1.00	-	1.75
2	1.76	-	2.00
3	2.01	-	2.50
4	2.51	-	3.00
5	3.01	-	5.00

ANCVA SUMMARY TABLE FOR LEVELS= COGNITIVE COMPLEXITY

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
BET.CLASSES	188	3003.63	
B	4	356.13	89.03**
ERR.B	184	2647.50	14.39
WITH.CLASSES	14931	7542.88	
TYPE	3	106.56	35.52
ITEM W. TYPE	76	1157.38	15.23
LEVEL X TYPE	12	112.13	9.34**
I X L WITH.T	304	193.88	0.64
ERR.W	14536	5972.94	0.41
TOTAL	15119	10546.50	

**p<.01

MEANS
ITEM TYPES

	1	2	3	4	ALL TYPES
LEVEL 1	4.58	4.70	4.37	4.30	4.50
LEVEL 2	4.74	4.77	4.68	4.45	4.66
LEVEL 3	4.86	4.89	4.80	4.63	4.80
LEVEL 4	4.94	4.95	4.73	4.74	4.85
LEVEL 5	5.04	5.02	4.82	4.89	4.95
ALL LEVELS	4.83	4.87	4.68	4.60	

Appendix A

I. Course Content, Objectives, and Structure

101. Course difficulty was appropriate for my background.

102. Course organization assisted me in learning.

103. Subject matter was intellectually stimulating to me.

104. Course content was interesting to me.

108. Course goals were clear to me.

111. I learned basic terms in this area.

112. Objectives encouraged me to learn the structure and methodology of the subject.

114. I was encouraged to apply knowledge and skills in new situations.

115. Course objectives helped me understand main emphases.

116. I was encouraged to learn on my own.

117. Course requirements were clear from the beginning.

122. Facts and concepts from related fields were presented.

123. Instructor emphasized ways of solving problems rather than solutions.

124. Practical applications of the material were discussed.

127. Adequate time for questions was provided.

128. Instructor emphasized ideas rather than facts.

129. Rational and intellectual aspects of the subject were stressed.

130. General concepts and ideas were stressed.

II. Instructor's Behavior

201. Concepts were presented in a manner that aided my learning.

203. My work was evaluated in ways that were meaningful to me.

206. Instructor seemed aware of my needs, abilities, and interests.

207. Instructor seemed to be concerned with whether I learned the material.

208. Instructor seemed enthusiastic when presenting course material.

209. Instructor seemed interested in teaching this course.

210. Instructor responded to my questions with clarity.

211. Discussions raised interesting new ideas.

212. My questions were answered fully and completely.

214. Instructor was available to me outside of class.

215. Difficult concepts were explained in a helpful way.

216. Instructor gave sufficient detail to make generalizations meaningful to me.

217. Instructor spoke clearly and was easily understood.

218. Presentations were interesting and challenging.

219. Material was summarized in a manner which aided my retention.

221. Instructor communicated at a level appropriate to my understanding.

226. Instructor summarized major points.

228. Instructor made clear what he/she considered important.

233. Instructor invited criticisms of his/her own ideas.

234. I was encouraged to participate in class discussion.

239. Instructor encouraged students to see him/her if they were having difficulty.

241. Instructor discussed points of view other than his/her own.

242. Recent developments in the field were discussed.

245. Class presentation seemed well organized.

247. Well-chosen examples were used to clarify points.

III. Instructional Methods and Materials

301. Grades were based on a fair balance of requirements and content.

303. I knew what improvement was needed from feedback on tests/assignments.

304. Exams reflected the emphases of class presentations.

305. Exams allowed me to adequately demonstrate what I learned.

306. Exams required me to do more than recall factual information.

309. Exams covered material on which I expected to be tested.

312. Exams stressed my ability to apply knowledge in new situations.

315. Assignments and expectations on homework were clear to me.

317. Assignments contributed to my learning.

318. Assignments were consistent with course objectives.

321. Assigned readings were pertinent to topics presented in class.

322. Course materials were a helpful guide to key concepts covered during class time.

326. Discussion was helpful to my learning.

329. Exams required creative, original thinking.

332. Exams required synthesis of various parts of the course.

333. Instructor had me apply concepts to demonstrate understanding.

IV. Outcomes of Instruction

402. I became more interested in the subject.

403. I was stimulated to elect more courses in this area.

404. I was stimulated to do additional reading in the area.

405. I was stimulated to discuss new ideas in or out of class.

407. My knowledge and skills were increased.

408. I developed an appreciation for the subject.

409. My skill in critical thinking was increased.

410. My problem solving abilities were improved.

411. I learned fundamental principles or theories.

413. I learned to understand my strengths and weaknesses in the area.

414. Instructor helped me feel confident in expressing new ideas.

415. I learned to see relationships among important topics and ideas.

416. I was forced to think for myself.

417. I was motivated to do work beyond minimum requirements.

418. I was motivated to do my best work.

420. I was stimulated to substantial effort toward learning.

423. Instructor helped me integrate facts and develop generalizations.

424. I had an opportunity to demonstrate my knowledge and/or understanding.

425. I learned new ways to evaluate problems.

427. I learned how to find more information on the subject.

428. I was motivated to study a topic from the course on my own initiative.

Appendix B

1. What grade do you expect to receive in this course?

   - ☐ A
   - ☐ B
   - ☐ C
   - ☐ D
   - ☐ P
   - ☐ F

2. This course is a(an)

   - ☐ Requirement.
   - ☐ Elective.

3. Class

   - ☐ Freshman
   - ☐ Sophomore
   - ☐ Junior
   - ☐ Senior
   - ☐ Graduate

4. In general, tests/assignments primarily required me to (mark only one)

   - ☐ Reproduce facts & opinions.
   - ☐ Integrate concepts.
   - ☐ Apply information in novel situations.
   - ☐ Create a product, plan or approach.
   - ☐ Evaluate the appropriateness of situations.